DOCUMENT RESUME

ED 106 734 CG 009 800

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TITLE Learning Process in Aging and Adult Education.
PUB DATE 74
NOTE 27p.

EDRS PRICE MF-$0.76 HC-$1.95 PLUS POSTAGE
DESCRIPTORS Adult Education; *Adult Learning; *Changing Attitudes; Concept Formation; *Learning Theories; *Older Adults; Research Reviews (Publications); Socialization; *Values

ABSTRACT

The tragic feature of our society is that much time and effort has been placed into the remarkably successful feat of prolonging life. But somehow in our society we have failed to build in reasons for appreciating those added years. Our heritage has been adapted to career building with the concommitant factors of home-making and family-raising. Through this Puritan approach to life there has been a poor job done of developing values for aging. The basic assumption that is made about man as his chronological age increases is that he is inclined to make sense out of his life in a new and fundamental way. This is not an implication which can be used in so limited a situation as retraining or rehabilitation. Rather it is a suggestion that the aging person look about himself, assess his personal potentialities, and try to define a set of values relevant to his situation. There is necessity for re-examining and re-defining values called for in the nature of the aging person. Education for the aging person requires vigor of mind in designing a program with reasonable prospects of success. Perhaps the best educational program for aging is that which begins in early life and progressively prepares for transforming values into learning. (Author)

ED106734

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LEARNING PROCESS IN AGING AND ADULT EDUCATION

by

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Fall 1974

CG009800

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INTRODUCTION

Culture includes the environment, the community, the family, the individual, the mores, the media of mass communication, advertising, propaganda, and many other tengibles as well as intangibles. Complexity such as this requires cultivation of diverse coping capacities through knowledge input and manipulation. The demand for equal educational opportunity for all has become a reality. In past times educational opportunity was monopolized by the limited few in power. Today, the world is seeking education that helps everybody learn to think (15:90).

Hutchins (15:134) refers to our present day milieu as the learning society. In his estimation this is a society where all institutions are directing their efforts toward learning. Thus, by transforming its values into learning a society can succeed in its aims toward becoming more human. As Rene' Dubos has so vividly pointed out in So Human an Animal, man's nature exhibits such remarkable unity and permanency, that his social institutions and ways of life are extremely diverse and changeable. It is this human diversity that enables society to adapt itself to changing situations toward growth and survival.

Allport and Maslow, as mentioned by Donahue (8:169), are concerned with the whole person, especially the normal person who is seeking expression of his growth needs. Maslow's normal person is the one in whom growth needs clearly outweigh such basic needs as safety, belongingness, love, and self-esteem. Thorndike (26:3) pointed out almost one-half century ago that the most impressive thing about man is his power to learn and change himself. This is true today.

APPROACHES TO LEARNING THEORY

An area of knowledge which can be interpreted in a systematic way is a theory. Three closely related functions of a theory of learning have been outlined by Hill (14:23). One of these functions is an approach to an area of knowledge by way of analyzing and talking about it. This serves as a guide and source of stimulation for research and scientific thought. A second function is an attempt to summarize the laws of learning. The third function is a creative attempt to explain what learning is and why it works as it does. Laws give the "how" of learning while theories attempt to give the "why" of learning. These functions seek to provide a basic understanding of the comonts to a theory or a system of learning.

In a broad sense, learning can be definted as growth and change. It is <u>not</u> a matter of filling a void with information. Learning is a process of internal organization of a complex of thought patterns, perceptions, assumptions, attitudes, feelings and skills as well as the successful testing in reorganization of these in relation to problems of living. Specific definitions of theorists are to be found dispersed throughout the ensuing pages.

The original meaning of pedagogy referred specifically to the art and science of teaching children but somewhere in history the "children" part got lost (16:37). Pedagogy is the logical development of subject matter with articulation from grade to grade or from simple to complex. It is designed for the child on a long-term subject-centered basis. Currently some dictionaries list pedagogy and define it without reference to children. This term, which is fairly widespread in usage,

does not fit present day educational situations, especially for the adult learner. In the past, knowledge was transmitted as fairly stable since only minimal cultural change occurred during any one individual's life span. Today, however, the time-span is much less than the individual's life-span so that more than transmittal of knowledge is necessary.

Andragogy, on the other hand, is a term used to indicate development of learning experiences related to the concerns of the learner. The design of andragogy is morefor the adult and concerned with an immediate problem-centered situation. In other words, andragogy would refer to an approach in education that is problem-centered and directed at immediate concerns, according to Knowles (16:48). This approach is more appropriate to the adult learner than the subject-centered approach which fits the youth.

PROTOTYPES OF LEARNING THEORIES

Prototypes of learning theories in American psychology have been outlined by Robert M. Gagne' of Florida State University (11:7-19). Briefly, these are:

1. Associationist tradition (Mill, William James and John Dewey) which places the nervous system rather than "the mind" in a position of central importance to an understanding of how sense impressions get connected with behavior. This approach assigns a critical role to actions as a factor in learning.

2. Animal trial and error (Thorndike, Skinner, Suthrie and Hull) which is represented by confronting an animal with a novel situation. The motivated learner engages in various "tries" to attain satisfaction. Sooner or later, largely by chance, he makes a set of responses that lead to motive satisfaction.

3. Conditioned response (Pavlov and Watson) which is now believed to be a very special kind of learning, representative of the establishment of involuntary, "anticipatory" responses. These are not representative of most of the events we mean by learning.

4. Learning of verbal associates (Ebbinghaus, Robinson, McGeoch, Melton, Underwood and Postman) represents a productive line of investigation of memorization, learning of nonsense syllables and other verbal units. This prototype is a very limited range of actual learning situations.

5. Insight (Wertheimer, Katona, Kohler, Harlow and Koffka) is the Gestalt tradition which is conceived as a suddenly occurring reorganization of the field of experience.

6. Reinforcement theory (Hull, Spence, and Miller) which is not included in the 1965 edition of The Conditions of Learning. There are variable definitions of reinforcement theory. The typical interpretation of reinforcement is that it occurs when a motive is directly satisfied.

Bigge (2:5) makes several pertinent comments about a theory of learning. He states that any purposeful action is governed by theory. The question is not whether one has a theory but how tenable it is. A new theory of learning requires some 25-75 years to be translated into actual school practice and by that time may well be fused into it's predecessor theories. Twentieth century learning theories can be classified into two viewpoints according to this source, namely, the S-R associationistic or into the Gestalt-field families. The S-R associationistic learning approach involves primarily formation of mechanical connections of some sort between stimuli add responses. The Gestalt-field theorists approach to learning is a process of gaining or changing insights, outlooks, or thought patterns.

Thyne (27:17) states that to define learning is only indicating the events he means when he uses that word. Any instance of learning indicates a change of behavior. Two questions are posed. What makes learning take place? What conditions govern learning? This theorist feels that reward, practice, and punishment are things that make learning occur. In his words, "to learn is to adapt a new response to a situation."

THEORETICAL VIEWPOINTS ABOUT LEARNING

Learning is a change in insights, behavior, perception or motivation or a combination of these variables (2:1). The cultural and social heritage is a result of the many generations of cumulative learning which has made it possible for human capacity to deal with the past, present, and future. The very process of learning, both concrete and abstract, can become satisfying to man. His capacity for extension of experience to a world of symbolism results from the potential for becoming human. It has been curiosity, however, that has impelled man to learn. Mental discipline, natural unfoldment, and apperception have continued to influence man through the centuries. Much of man's behavior is the result of learning. Behavioral diversity, therefore, is one way in which learning can be understood according to Bigge (2:1).

Wilson and others (12:468)(25:13)(28:7) have pointed out that most learning theorists emphasize one or two kinds of learning as central. However, their viewpoint is such that learning is considered so complex that no single theory can explain all aspects. The idea that things are learned because they occur together, either in space or in time, is termed the contiguity theory by these authors (28:6). The following model postulates extrapolated by Wilson and his co-workers from S-R and Gestalt will summarize their viewpoint on learning:

1) The central intermediary is its neurological base or what actually happens in the brain,

2) A combination of habit and cognitive structures as both kinds of learning which are different and do happen,

3) The presence of hypothetical constructs for explaining as yet unproved processes meaning that learning processes are real and measurable,

4) A combination of trial-and-error learning plus insight learning which is basic to insightful problem solving.

In some ways this approach is similar to the associationist idea that the nervous system rather than "the mind" is the thing of central importance to an understanding of how sense impressions get connected with behavior.

Significant points made by J. W. Getzels (University of Chicago) and comments by Wilma Donahue (8:168-169) about learning theory in adult education reveal various factors upon which learning depends. These are:

1) Motivation. The learner must have a disposition to learn. He must be motivated by growth needs to get the most out of education.

2) Capacity. One must assess capacities if he is to achieve maximum learning.

3) Previous experience. "Insightful learning depends on cognitive reorganization rather than on the accretion of material by rote." As one grows older the volume of accumulated experiences mounts in quantitiy. This results in an increasing amount of cognitive reorganization to be managed.

4) Relevant relationships. The idea is to get relevant units of past experience and relevant units of new experience to fit into satisfactory relationships. Out of what one already knows and newly learns, he must construct a "whole." This then represents a constellation of values and ideas.

5) Meaning. Efforts directed toward a search for meaning must allow for experimenting as well as trial-and-error.

6) Evaluation of progress. The learner needs to see periodic posting of his progress.

7) Adjustment. Personal and social adjustment to the learning situation requires attention to the physical environment and modes of presentation.

Gagne' (12:468) believes that it is wise to be flexible in a viewpoint about learning since there is continual additions to the knowledge base of learning. He feels opportunities are great for improvement of our present knowledge of human behavior through research. The present status of research into the dynamics of learning behavior is in upheaval. The investigators seem to be shifting from a "connectionist" view of learning to an "information processing" view. In the past it was believed that learning was a matter of establishing connections between stimuli and responses. The more current view of learning is that stimuli are processed in quite a number of different ways by the human central nervous system, and that understanding learning involves figuring out how these various processes operate.

In comparing approaches to learning theory, the S-R associationists described by Bigge (2:5) are comparable to the connectionists described by Gagne' (12:468). There seems to be a slight difference, however, in the Gestalt-field theorists described by Bigge (2:5) and the informationprocessing view outlined by Gagne' (12:468). Although both these later views consider learning as "processes," there seems to be a variation, at least in terminology and specificity. Bigge refers to processes of gaining or changing insights, outlooks, or thought patterns as though there were stable pathways for the processes. Gagne' takes a different approach, a global one, by talking about stimuli being processed in a variety of ways. This later, however, is in keeping with a broad approach of which he is a proponent.

Melton (17:332) reminds us that our science of human learning started with a taxonomy of learning tasks. These were subjected to a combination and fission for refining into subcatagories. This then lead to new subcatagories. These may further lead to different sets of catagories based on process or construct distinction. Traditional catagories of human learning according to this author are conditioning, rote learning, probability learning, skill learning, concept learning, and problem-solving.

Again, according to Gagne'(11:3), learning is "a change in human disposition or capability which can be retained and which is not simply ascribable to the process of growth." The changes to which he refers can involve a type of performance, an attitude, an interest, or a value. Generalizations rather than rules can be made about distinguishable classes of performance change (learning). The interactions of growth and learning are responsible for human development. Factors influencing growth and development are primarily genetic while those influencing learning are primarily environmental. The elements of any learning event include the learner, the stimulus situation, and the response (11:4-5).

All human activities are learned and to suppose that there is only one set of conditions governing their occurrence is to ignore the facts of common observation (11:21). Varieties of learning are equal to the varieties of conditions for learning. Differentiation of the variety of learning and learning conditions can be made by descriptions in each situation. In other words, all learning is not the same. Each type of learning begins from a different point of internal capability and is likely to require an external situation in order to take place effectively.

Eight sets of conditions under which changes in capabilities of the human learner are brought about are described by Gagne' (11:62). The implication is that there are eight corresponding kinds of changes in the nervous system which need to be identified and ultimately accounted for. Each of these may involve different initial states or different structures, or both. But from the standpoint of the outside of the human organism, they seem to be clearly distinguishable one from another in terms of the conditions that must prevail for each to occur. As research continues in learning theory, it is possible that some may be expanded upon, some deleted, and some combined. The following varieties of learning are those that seem to be consistent with present evidence:

1) Signal learning (Pavlovian conditioned or classical response) which refers to responses that are general, diffuse, emotional responses.
2) Stimulus-response learning (Skinner) where the capability acquired suggests differential characteristics of the learning and emphasizes a process of discrimination as an integral part of the learning.
3) Chaining or connecting together in a sequence of two or more previously learned stimulus-responses.
4) Verbal association which is a sub-variety of chaining with a distinguishable set of learning conditions.
5) Discrimination learning (titled "multiple discrimination" in the 1965 edition) in which acquisition of a distinctive set of stimulus-response situations differentiate the stimuli and set off chains requiring the reduction of interference to ensure retention.

6) Concept learning appears to be dependent on internal neural processes of representation and means learning to respond to stimuli in terms of abstract properties.
7) Rule learning (titled "principle learning" in the 1965 edition) means learning a chain of two or more concepts.
8) Problem solving is "thinking out" a new principle that combines previously learned principles or rules.

CONCEPT LEARNING

At the Eighth Annual Phi Delta Kappa Symposium on Educational Research in 1967 (9:4), Robert Glaser reported that concept learning involves learning to make a common response to a set of stimuli. In multiple sets of stimuli, each set has a specific response. An individual learns to discriminate between situations and generalize his behavior toward the relevant properties. Dimensions according to which situations can be categorized can be identified for conceptual behavior. The first category includes multiple stimuli and a common response. The second catagory includes multivariate stimuli where the individual must distinguish the relevant dimensions. This is in contrast to the paired-associate learning where a different response is learned for each stimulus.

There is a narrow range of subject matter to which the concept approach is applicable. Research into how concepts are learned and how they can be taught has been limited by several variables. These variables according to Glaser (9:32) are:

1) A lack of analyses into the nature of competence in different conceptual tasks,

2) Rigidity in the experimental procedures in adapting to response histories,
3) Neglect of interactions between the individual response and the learning process, and
4) A lack of strong theories as to how concept learning occurs.

Gagne' (11:51) points out that concept learning appears to be dependent upon internal neural processes of representation. Learning a concept means learning to respond to stimuli in terms of abstract properties. The implications are that one puts things into a class and responds to the class as a whole. There are two kinds of concepts, concrete and abstract. Concrete concepts are those that can be observed such as shape, size, tree, house, etc. Abstract concepts arethose that must be described such as temperature, mass, square root, etc.

SELECTED STUDIES OF LEARNING AND AGING

Aging has been defined in various ways. It is a diffuse topic. Birren (3:1) uses the term "aging" as determinate patterns of late life changes which are eventually shown by all persons but variable in their rate and degree. These patterns can be distinguished from disease and the adventitious consequences of existence. Heredity, cultural patterns, exposure to disease, and a myriad of other complex factors are no doubt contributors to advancing age. Two general conclusions about aging have been drawn. One conclusion is that any hypothesis about aging has to be more or less general in nature. The second conclusion is that the mechanism of aging is essentially unknown. Any greater specificity than this to a hypothesis about aging cannot be made on the basis of present knowledge.

Coppinger and Nehrke (6:94) studied 69 elderly male patients with multiple medical problems in a Veterans Administration Hospital as to discrimination learning and transfer of training. Criteria for selection to participate were 60-years of age or older, ambulant at least in wheelchair, and judged by the nursing personnel to be sufficiently cooperative and physically able to participate. Examination of the change from initial task to transfer task was found to be essential to interpretation of change which wascolor and form in this study. Analysis of transfer data alone provides no information as to which shift conditions have changed on the basis of the transfer task administered.

Hall (13:237) investigated developmental changes in intellectual functioning in the mentally ill aged over a period of 8-years. The initial sample was 137 subjects 65-years old or more in 1964. Diagnostic catagories in the sample were normal, schizophrenic, and affective organic. The instrument used was the Wechler Adult Intelligence Scale, verbal and performance full scale. During this longitudinal study 63 (46%) of the subjects died before assessment. Comparison of initial and follow-up scores of survivors showed that later performances were poorer in all diagnostic catagories. The non-survivers had lower initial WAIS scores than the survivers. This is, however, comparable to normal survivers and non-survivers in any community.

Decrements were found by Taub (23:164) to be similar in both young and old subjects. In a study of short-term memory and complexity of stimulus organization, accuracy decreased as complexity of stimulus organization increased in both young and old subjects. Moenster(18:363)

reports a comparable finding on learning and memory in relation to age. Memory differences fro learned materials between young and older adult subjects became non-significant statistically when memory performance was adjusted for learning performance.

A Cooperative Research Project was conducted by Owens (19:5) for the purposes of determining life history correlates of age changes in mental abilities. Early decline functions are those most sensitive to decrements in neural efficiency. The use-disuse hypothesis is felt to account for much of these decrements. This is a hypothesis that the less practiced mental functions are more susceptible to decrements with age than are the more practiced ones. Verbal ability generally holds at least through the 50's and arithmetic reasoning decreases slightly with age. Symbol series, digit-symbol completion, verbal analogies and number series completion decline sharply with age (19:124).

Bayley and Oden (1:91) report on several studies of intellectual abilities. Some show a tendency for adults to exhibit decreased intellectual abilities with age as measured in test scores. The amount of decrease in abilities, however, varies with the instruments used. Some studies found increase slight but consistent to age 60-years on tests of vocabulary or word knowledge. These increases are in those of above average ability and education as well as tests that do not put a premium on speed of performance. Increases do not seem to hold for tests requiring fast reactions or persons of low intelligence. Several studies indicate that many intellectual functions do not decline with age and that such abilities as information and word knowledge even show continuous improvement well into later adult years.

Mental abilities and psychomotor responses in healthy aged men have been studied by Birren (3:106). The results are not representative of all men over the age of 65-years. Two points were clear. First, healthy men over the age of 65-years do better on psychological tests than men unselected for health. Second, age differences in patterns of abilities were found even in a population devoid of apparent disease. The investigator felt it was impossible to state whether behaviors which seem intimately associated with aging are simple or multiple phenomena. The loss of speed, for example, may result from a change in component capacities rather than in general overall loss.

Pintner (21:70) outlines theoretical considerations in the effect of age on learning. These are:

1) Activity has greater directness ad control with less waste of energy at a later age period,
2) Attention, interest, and motivation are more likely to be present at middle age,
3) Perceptual learning is distinctly in favor of a mature person in that a richer apperceptive background of experience is brought to bear on the learning,
4) Problem solving is easier for the same reason as is also the memorized learning of organized material,
5) In the case of nonsense or unorganized material, the difficulty of motivation and lack of receptivity for such material may militate against the mature person but more efficient methods of study will largely compensate for these factors,
6) In sensorimotor or skill subjects, to begin in youth makes for greater permanence and excellence, particularly in the case of language.

For the past decade a team of psychologists, biochemists and anatomists have demonstrated that learning alters chemical activity and increased cell growth in the cerebral cortex (22:77). The changes that are correlated with enhanced problem-solving ability and mental activity result in brain growth. A stimulating environment leads to a maximum rate of learning. The conclusion of these investigators is that we literally modify our brains according to the use we make of them.

In a 10-year longitudinal study of aging, Palmore (20:340) found evidence contradictory to most cross-sectional surveys and commonly held assumptions about the aging in regard to activities and attitudes. His findings suggested that normal aging persons tend to compensate for reductions in some activities or attitudes by increases in others or to compensate for reductions at one point in time with increases at other times. No significant overall decrease in activities or attitudes were found in men and only a small overall decrease among women. Aging seems to cause more overall changes among women than men.

Palmore (20:340) further found no evidence that patterns of behavior or attitudes became increasingly rigid or differentiated with the normal aging process. Decrease in activity was associated with decrease in satisfaction of life situation. This has been interpreted as contrary to the disengagement theory but supportive of the activity theory. The disengagement theory postulates that disengagging from life activities as one grows older is a universal human need (16:84). The activity theory postulates that the American formula for happiness in old age is to keep active (20:340).

According to the Duke Longitudinal Studies, 268 volunteers, taking the Chicago Inventory of Activity and Attitudes, showed the best predictors of longevity to be:

1) Actuarial life expectancy at initial testing,
2) Physical functioning,
3) Work satisfaction, and
4) Performance intelligence.

EDUCATIONAL IMPLICATIONS

Education is concerned with the total human being and his insights as well as understanding of his entire world. The desired outcomes for learning experiences range from complex comprehension of organizational dynamics to simple manual skills (24:3). Learning situations vary according to the site in which they occur such as at home, on the job, or in the classroom. A continum from the casual to intense concentration will need to be considered in learning methods. Situations which best facilitate learning may be on an individual basis or in groups. All these things are the concerns of anyone involved in the process of human learning. The teacher who has an insight into the nature of learning will more effectively promote learning in the learner (27:14).

Instruction very often involves communicating verbally with the student for the purposes of informing him of what he is going to achieve, reminding him of what he already knows, directing his attention and actions, and guiding his thinking along certain lines. The planning that precedes effective design for learning is a matter of specifying

learning structure of any subject to be acquired. In order to determine what comes before what, the subject must be analyzed in terms of the types of learning involved. Every new capability builds on a foundation established by previously learned capabilities. Need to avoid the convenient escape mechanism that the student is not "mature" requires attention.

TEACHING-LEARNING INTERACTION

Creative self-direction can be taught to learners. Learning takes place at different levels, depending on the presentation of the material and on the prior experiences of the learner and his intellectual ability (28:9). As levels progress, the learner will have found the strength and ability to function as a free agent. This will require willingness on the part of the teacher to allow the learner to become his own master in certain spheres of his own learning process.

Bradford (5:135) has summarized the areas to be examined in development of any effective teaching-learning situation. These are:

1) What the learner brings to the transaction.
2) What the teacher brings to the transaction.
3) The setting in which the learning and change take place.
4) The process of interaction between teacher and learner.
5) The conditions necessary for learning and change.
6) The maintenance of change and utilization of learning in the life of the learner.
7) The establishment of processes for continued learning.

The above points can serve as a checklist for the teacher in assessing the potential of any particular teaching-learning process.

Gagne' (12:471) atates several significant points about the newer conceptions of learning and memory which is relevant to the learning situation. First, each learner should approach each new learning task with a different collection of previously learned experiences. Second, mastery of the previous learning experiences is essential to the new learning situation. Third, periodic and spaced reviews have an important role to play in retention. In review a student has to exercise his strategies of retrieval. Teaching becomes a matter of stimulating the use of capabilities the learner already has at his disposal and making sure he has the requisite capabilities for the learning task at hand as well as those in the future.

LIMITATIONS OF THE TEACHING-LEARNING PROCESS

There are some problems of great importance to education which cannot be solved by applying a knowledge of the principles of learning (11:25). For example, there are many aspects of the personal interaction between a teacher and his learners that do not pertain to the acquisition of skills and knowledges that typically form the content of a curriculum. These varieties of interaction include those of motivating, persuading, and the establishment of attitudes and values. Regardless of how much may be known about how to begin the process of establishing competence through learning, it is clear that no one knows very much at present about how to continue the process to its highest levels. Furthermore, there is every present the factors comprising learning readiness which may be inconsistent in their presence and thus create limitations.

LEARNING GOALS

This and Lippett (25:12) have prepared a simplified mathematical statement of a model for learning goals. The following is an adaptation of the model:

$$\text{Learning Goals} = \frac{\text{Present state of the organization} + \text{Recognized need for change}}{\text{Appropriate learning theory} + \text{Appropriate learning design} + \text{Supportive climate for behavior change}}$$

Research indicates little or no significant decline in learning ability with age. The older person needs to compensate with increasing knowledge and understanding for the decrease in speed and physical strength (7:59). In 1957, one-half million or one person in 30 over the age of 65-years participated in formal adult education classes. Over the past 15-years this number has increased markedly and made it necessary to develop programs to meet adult needs. The mathemactical statement mentioned above can be used to provide a framework for program design.

Some new goals for education that can be helpful to the older person have been suggested by Davis (7:61). These include:

1) Enrich added free time with educational pursuits and retain mental alertness.
2) Continue employment of some type if possible.
3) Expand mental horizons through interactions with others.
4) Keep up-to-date and in touch with the surrounding world.
5) Meet the challenges, opportunities and problems that come with age.

Learning goals must be followed by some organization of program development. Material subjected to memory will soon be forgotten if not placed in a structured pattern.

Principles inherent in current trends in training programs as outlined by This and Lippitt (25: 13+) are applicable to adult education programs. Restatement of these trends follow:

1) Focus on improved performance rather than increased individual knowledge.

2) Place emphasis upon the training situation rather than the individual.

3) View the training as the way management gets the job done rather than the function of the training department.

4) Build up in-house capabilities rather than dependence on outside experts.

5) Insist on evaluation of training rather than accepting it on faith.

6) Design learning that will focus on learning how to learn.

7) Consider training that is reality based as against training that is highly unrelated to the learners' life experience.

8) Develop training with an action-learning base rather than based on a one-way communication.

9) Foster training that provides reinforcement and follow-up experience for trainees rather than "graduating" them from a training program.

10) Depend more on learning to be self-motivated by the learner rather than imposed on the learner by the trainers.

11) Ensure that training be goal-oriented rather than vague assurance that it will be "good for you."

12) Facilitate greater homogeneity in the persons being trained.

When programs are developed utilizing the above principles, the aging adult will be better prepared to develop values through education that help him cope with a complex society.

Various behavioral capacities decrease slowly but progressively with age. In reviewing the literautre the most apparent of these behaviors are:

1) Tasks which involve psychomotor and manipulative skills,

2) Developing new associations and cognitive problem-solving skills, and

3) Utilization of "adaptive abilities" as contracted to tasks measuring principally "stored information."

Birren (4:143) reports that with advancing age, changes occur in integration of complex skills which implies changes in properties of the nervous system. Thorndike (26:57) included a similar statement in his hypothesis over 40-years ago, " - - - - the capacity to learn and remember could find its physiological basis in the movement-processes of the neurones." Through the years the original ideas of investigators have been lengthened, deepened, and expanded to stimulate newer ideas and findings.

SUMMARY

According to Wilma Donahue (8:160), the tragic feature of our society is that much time and effort has been placed into the remarkably successful feat of prolonging life. But somehow in our society we have failed to build in reasons for appreciating those added years. Our heritage has been adapted to career building with the concommitant factors of home-making and family-raising. Through this Puritan approach to life there has been a poor job done of developing values for aging.

The basic assumption that is made about man as his chronological age increases is that he is inclined to make sense out of his life in a new and fundamental way. This is not an implication which can be used in so limited a situation as retraining or rehabilitation. Rather it is a suggestion that the aging person look about himself, assess his personal potentialities, and try to define a set of values

relevant to his new situation. There is necessity for re-examining and re-defining values called for in the nature of the aging person. Education for the aging person requires vigor of mind in designing a program with reasonable prospects of success. Perhaps the best educational program for aging is that which beings in early life and progressively prepares for transforming values into learning.

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